



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

April 2, 2021

WRECKAGE EXAMINATION SUMMARY

WPR21LA145

This document contains 3 embedded photos.

A. ACCIDENT

Location: Marana, Arizona
Date: 03/28/2021
Aircraft: Cirrus SR22; N644SR
NTSB IIC: James Bledsoe

B. EXAMINATION PARTICIPANTS:

Andrew Swick
Aviation Accident Investigator
National Transportation Safety Board
Phoenix, Arizona

Brannon Mayer
Air Safety Investigator
Cirrus Aircraft
Duluth, Minnesota

Ben Bisel
Electrical Engineer
Sustaining Engineering Department
Cirrus Aircraft
Duluth, Minnesota

C. SUMMARY

Examination of the recovered airframe and engine was conducted by the National Transportation Safety Board and Cirrus Aircraft. The No. 2 connecting rod and piston pin separated from the crankshaft. The No. 2 connecting rod journal was black in color and had mechanical damage. The No. 2 main bearing half was visible and was not positioned properly in the saddle bearing support. The Cirrus Airplane Parachute System (CAPS) rocket motor squib was found to be inoperative.

D. DETAILS OF THE INVESTIGATION

1.0 Airframe Examination

Both wings were cut and removed near the wing root, and the right horizontal stabilizer was also cut near the fuselage to facilitate the relocation of the wreckage. The fuselage was intact, and the lower aft fuselage had ground impact damage. The engine cowling was attached, and oil streaked from both sides of the cowling.



Figure 1-Main wreckage positioned during the examination.

First responders disconnected the electrical connector (white) that supplies electrical power to the CAPS. The ELT was also unclamped from its mount and switched from the “Armed” position to the “Off” position.

The CAPS enclosure fuselage panel was removed with the use of a ball pinned hammer to expose the parachute pack and rocket motor. No anomalies were noted. A jumper was added to the rocket motor switch to prevent accidental firing. The floor panel was removed from the baggage floor area. Testing of the various CAPS electrical system components was observed. The rocket motor squib was found to be inoperative.

The primary flight display, the multifunction display’s SD card, autopilot unit and the squib were obtained by the NTSB for download and further examination.

2.0 Engine Examination

Examination of the Continental IO-550-N engine (Serial No. 689836) revealed that the engine remained attached to all four engine mounts. The upper cowling was removed and impact damage (from the underside) was noted near the center of the cowling. Piston and crankshaft sections were found on baffling on the right side of the engine. The magnetos separated from their crankcase mounts and remained in their relative areas. The magneto ignition leads had impact damage. The No. 2 connecting rod, piston and crankcase material were found outside the crankcase near the magnetos. The No. 2 connecting rod had mechanical damage. The connecting rod end cap and No. 2 piston pin was also found outside the crankcase between cylinders No. 1 and 2. The end cap had mechanical damage and was flattened. One bolt end was attached to the cap end. Underneath the magnetos the crankcase had a large opening, measuring about 5 inches in diameter. The crankshaft and the No. 2 cylinder bay area had mechanical damage. The No. 2 connecting rod bearing journal was black in color (thermal discoloration) and had mechanical damage. A No. 2 main bearing half was visible and was not positioned properly in the saddle bearing support. (See figure 2.)



Figure 2-Crankcase damage and view of the crankshaft and interior components.



Figure 3-No. 2 connecting rod, piston pin and crankcase and piston material.

Submitted by: Andrew Swick